

## REMARKS

Reconsideration of this application is respectfully requested.

Claims 1 and 7 have been amended in order to more clearly define the direction in which the tangent extends and to more clearly define the orientation of the acute angle. The amendment to claim 1, which refers to the portion of the tangent which extends in the direction of the rotation of the cylinder, corresponds to the description in the specification at page 9, lines 8-10.

New claims 18 and 19 have been added to describe the orifice as circular and to describe the diameter of the orifice.

Applicant believed that claim 1 as originally worded accurately stated that the two lines which form the acute angle were the axis of the orifice and the portion of the tangent to the cylindrical surface at the point at which the axis of the orifice intersects the cylindrical surface which extends in the direction in which the cylindrical surface rotates. That is the angle which is described on page 9 and which is illustrated at B in Figure 2. However, in the last Office Action, the Examiner stated that claim 1 does not require the direction as argued by applicant. In view of the Examiner's statement, claim 1 has been amended to state that the angle is formed by the portion of the tangent which extends from the point of intersection in the direction in which the cylindrical surface rotates. Applicant submits that the amendment makes clear that claim 1 describes the angle B as described on page 9 and as illustrated in Figure 2.

Claim 7 has been similarly amended to describe the acute angle which is formed by the longitudinal axis of the suction port and the portion of a second tangent which extends from said second point of intersection in the direction in which the cylindrical surface rotates.

If the examiner decides that claims 1 and 7 as amended are not allowable, entry of the foregoing amendment is respectfully requested in order to place the application in better condition for appeal. The amendments to the claims more particularly describe the acute angles, make the claims more definite, and clearly define the issue for appeal.

Now that the portion of the tangent and the acute angle which is described in claim 1 has been made more definite, applicant resubmits the arguments regarding Marcheggiani which he made in the Amendment filed May 27, 2005. In contrast to amended claim 1, in Figures 1 and 2 of Marcheggiani the roll 22 rotates in the same direction as the direction in which the nozzle 54 points. In Figure 2 the nozzle forms an obtuse angle with the tangent which extends in the direction in which the cylinder rotates.

The examiner refers to column 3, lines 51-54 of Marcheggiani, which state that the angle 60 could be between 0 and 180°. However, with the structure illustrated in Figure 1, the only way in which the nozzle could form an acute angle with the tangent which extends in the direction in which the cylindrical surface rotates is to reverse the position of the entire doctor system 20. That is illustrated in Figure 4 in which the

nozzle extends in a direction which is opposite to the direction of rotation of the endless belt 100. However, in that position the collection receptacle 114 and the drain therein are upstream of the nozzle and not downstream as claim 1 requires.

With respect to claim 7, the Examiner states that the suction port of Marcheggiani should be included in the housing 68 which forms an acute angle with the tangent to the cylindrical surface as shown in Figs. 1, 4 and 5. However, claim 7 states that the suction port has a longitudinal axis which forms an acute angle with the portion of a second tangent to the cylindrical surface at a second point at which the axis of the suction port intersects the cylindrical surface, said portion of a second tangent extending from said second point in the direction in which the cylindrical surface rotates. Even if the negative pressure of the suction port 74 of Marcheggiani is included in the housing or the receptacle 68, the housing or receptacle does not have a longitudinal axis, and the longitudinal axis does not form an acute angle as described in amended claim 7.

With respect to claims 10-13 and 16, applicant previously argued that there is no teaching or suggestion in the art that a nozzle of the type which is described in claim 10 could be used in an apparatus for cleaning the surface of a rotating cylinder as described in claim 1. The examiner responded that claims 10-13 and 16 are rejected under 35 U.S.C. 103 based upon a single reference rather than a combination of a secondary reference and a primary reference. However, the prior art nozzle having an air cap mounted on a fluid cap to provide a mixture of air and liquid is the secondary

reference. Without such a secondary reference, there is no basis for stating that Marcheggiani renders the claims obvious. Since the rejection relies on both Marcheggiani and the secondary reference of the prior art fluid cap and air cap, there must be some suggestion in the prior art that Marcheggiani could be modified by using the fluid cap and air cap as described in claims 10-13 and 16.

The fact that the prior art fluid cap and air cap is admitted prior art does not mean that the fluid cap and air cap does not constitute a secondary reference. For example, any two patent references which an examiner might use to make a rejection based on a combination of the references would be “admitted” prior art if the patents issued more than one year before the applicant’s filing date. There could be no way in which such patent references could be denied as prior art. However, despite the admitted status of the prior art, there must still be a teaching or suggestion to combine the prior art.

New claim 18 states that the orifice is circular, and claim 19 states that the diameter of the orifice is about 0.250 inch. Those claims are supported by the first full paragraph on page 8 and Figure 8.

In contrast to applicant’s nozzle with a circular orifice, Marcheggiani describes an “air knife” which extends for the entire length of the roll which is being cleaned. That is made clear in column 3 lines 28-44, which states that the tip of the nozzle is comprised of a pair of steel sheets “so that the discharge opening 56 is in the form of a slot (of between about 1mm and 3mm in width) which extends substantially the entire

length of the roll 22. Consequently, air which exits the discharge opening 56 exits the opening in a stream which is relatively narrow in width, yet relatively long in length so as to resemble a knife, or more specifically, the blade of a knife.”

Column 3, lines 67 to column 4, line 1 of Marcheggiani states that the velocity of the air stream exiting the long slit is between 8,000 and 40,000 feet per minute.

In contrast to the long slot of Marcheggiani, applicant’s nozzle has a circular orifice with a diameter of about 0.250 inch. When normal air pressure of 70 to 80 psi is applied to the nozzle with a 30 to 40 cubic feet per minute volume, the resultant nozzle velocity is between 88,000 feet per minute and 178,000 feet per minute:

$$\text{Nozzle Flow Rate} = 30 \text{ ft}^3/\text{min} \quad (\text{Minimum Flow Rate})$$

$$\text{Nozzle Flow Rate} = 40 \text{ ft}^3/\text{min} \quad (\text{Maximum Flow Rate})$$

$$\text{Nozzle Diameter} = 0.25 \text{ inch}$$

$$\text{Nozzle Area} = \pi \text{ Nozzle Diameter}^2/4$$

$$\text{Nozzle Area} = 0.0003409 \text{ ft}^2$$

$$\text{Nozzle Velocity} = \text{Nozzle Flow Rate}/\text{Nozzle Area}$$

$$\text{Nozzle Velocity} = 88006 \text{ ft/min} \quad (\text{Minimum Nozzle Velocity})$$

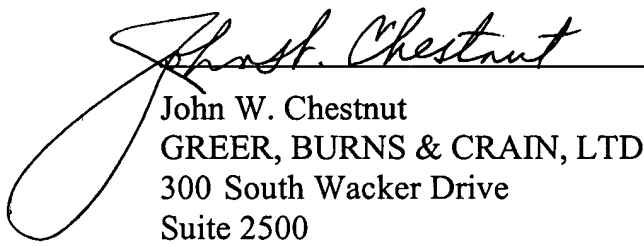
$$\text{Nozzle Velocity} = 117341.756 \text{ ft/min} \quad (\text{Maximum Nozzle Velocity})$$

Applicant's nozzle velocity is therefore about 3 times faster than Marcheggiani's highest stated speed. Applicant's design uses significantly less air volume, which achieves considerable savings because compressing large volumes of air is costly. The high velocity of the invention provides significant cleaning with much lower volume of air.

In view of the foregoing, reconsideration and allowance of this application is respectfully requested.

Respectfully submitted,

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